

## MRI Scores for Cerebral Small Vessel Disease and Prediction of Dementia

*Using MRI to score cerebral small-vessel disease may help predict dementia.*

Cerebrovascular disease increases the risk for dementia. To determine whether an MRI score for cerebral small vessel disease (SVD) can assist in the prediction of dementia, investigators examined MRI scans from participants in three longitudinal cohorts. Participants' SVD ranged from mild and asymptomatic to severe and symptomatic. Each cohort underwent cognitive testing, and conversion to dementia was determined by published criteria or screening mental status examination cutoff scores. The investigators created an SVD score based on the number of microbleeds, lacunar infarcts, and white-matter hyperintensities visualized on MRI.

The three cohorts had a total of 1842 participants (mean age range, 66–70 years; 36%–58% female). Dementia was diagnosed in a proportion of each cohort during follow-up of 5 to 11 years. Higher SVD score was associated with lower baseline cognitive performance. The prediction of all-cause dementia improved when SVD score was included in a model with age, sex, and education level. The prediction model was slightly stronger with vascular dementia as the outcome but remained essentially unchanged when other vascular risk factors were added to the model. Higher SVD scores were associated with greater decline in global cognitive scores and executive function in all three cohorts. An analysis showed that selecting patients with higher SVD scores could reduce by 40% to 66% the needed sample size for a clinical trial.

### COMMENT

As a tool that can be used in clinical practice, an SVD score based on brain MRI findings may be valuable and practical in educating patients and families about the importance of modifying vascular risk factors for dementia. SVD scores also may be useful in research, allowing for smaller study cohorts.

—*Jennifer Rose V. Molano, MD*

Dr. Molano is an Associate Professor at the University of Cincinnati.

*Amin Al Olama A et al. Simple MRI score aids prediction of dementia in cerebral small vessel disease. Neurology 2020 Mar 24; 94:e1294. (<https://doi.org/10.1212/WNL.00000000000009141>)*